



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/924,317	08/08/2001	Eric V. Kline	FIS920010181US1	3594

7590 04/19/2005  
Sean F. Sullivan, Esq.  
Cantor Colburn LLP  
55 Griffin Road South  
Bloomfield, CT 06002

EXAMINER

LEUNG, CHRISTINA Y

ART UNIT PAPER NUMBER

2633

DATE MAILED: 04/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	09/924,317	KLINE ET AL.	
	Examiner	Art Unit	
	Christina Y. Leung	2633	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8-8-2001</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 20 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 recites the limitation "said housing" in the last line of the claim. There is insufficient antecedent basis for this limitation in the claim because claims 19, 18, 17, and 13 on which the claim directly or indirectly depends does not previously recite a housing.

Examiner respectfully notes that claim 14 (which also depends on parent independent claim 13) recites a housing, but claim 20 cannot be simply amended to depend on claim 14 because it does not recite an actuator means (which is recited in claim 19).

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Palen et al. (US 6,205,266 B1).

Art Unit: 2633

Regarding claim 1, Palen et al. disclose a real-time, optoelectronic (OE) alignment system (Figure 3), comprising:

- a first OE device (fiber 50);

- a second OE device (detector 60) optically coupled to the first OE device;

- a capturing means for maintaining the second OE device in a fixed position (Figure 7 shows detector 60 mounted on monolithic body 67; column 4, lines 30-34), the capturing means further retaining the first OE device 50 in optical engagement with the second OE device 60, and the first OE device 50 further having a plurality of degrees of positional freedom associated therewith (provided by actuators 74, 76, and 78; column 3, lines 50-55);

- an error detection means (including sensing element 62 and controller 66) for generating a positional error signal, whenever either of the first and second OE devices has deviated from a desired optical alignment with respect to the other (column 4, lines 16-34); and

- an actuation means (actuators 74, 76, and 78), responsive to the error detection means, the actuation means for automatically adjusting the position of the first OE device so as to bring the first OE device in the desired optical alignment with the second OE device (column 4, lines 16-34).

Regarding claim 13, Palen et al. disclose a method for automatically adjusting the optical alignment of devices within an active, optoelectronic (OE) system (Figure 3), the method comprising:

- optically coupling a first OE device (fiber 50) to a second OE device (detector 60) in a desired optical alignment;

- maintaining the second OE device in a fixed position (Figure 7 shows detector 60 mounted on monolithic body 67; column 4, lines 30-34) while retaining the first OE device in

Art Unit: 2633

moveable optical engagement with the second OE device, the first OE device further having a plurality of degrees of positional freedom associated therewith (provided by actuators 74, 76, and 78; column 3, lines 50-55);

generating a positional error signal (using sensing element 62 and controller 66) whenever either of the first and second OE devices has deviated from the desired optical alignment with respect to the other; and

responsive to the error detection means, automatically adjusting the position of the first OE device so as to bring the first OE device in the desired optical alignment with the second OE device (using actuators 74, 76, and 78; column 4, lines 16-34).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-8, 11, 12, and 14-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palen et al.

Regarding claims 2 and 14 in particular, Palen et al. discloses that the second OE device (detector 60) is affixed to a reference plane (Figure 7 shows detector 60 mounted to monolithic body 67). Palen et al. further disclose that the first OE device (fiber 50) is movably disposed on the monolithic body and that the monolithic body is affixed with respect to the second OE device (column 4, lines 30-34). Regarding claims 3 and 15 in particular, Palen et al. discloses that the actuation means 74, 76, and 78 for adjusting the position of the first OE device is disposed on the monolithic body 67 (column 4, lines 30-34).

Art Unit: 2633

Regarding claims 2, 3, 14, and 15, Palen do not specifically disclose that monolithic body 67 such as shown in Figure 7 is a "housing." However, enclosed housings are well known in the art for protecting optoelectronic elements and connectors such as disclosed by Palen et al. Palen et al. also suggest a package 50 with respect to a discussion of another system shown in Figure 1 (column 1, lines 28-42). Regarding claims 2 and 3, it would have been obvious to a person of ordinary skill in the art to specifically include a housing (such as by further extending the monolithic body 67 already disclosed) in the system disclosed by Palen et al. in order to protect the elements from external conditions and disturbances. One in the art would have been particularly motivated to provide a housing since the system is directed to maintaining a precise alignment between elements wherein undesired movement between elements should be minimized.

Regarding claims 4 and 16, Palen et al. disclose that the first OE device is an emitting end of a fiber optic cable (i.e., fiber 50; column 3, lines 46-50; column 4, lines 4-6).

Regarding claims 5 and 17, Palen et al. disclose that the error detection means further comprises:

a beam position structure located so as to reflect a portion of an incident optical beam originating from the other of the first and second OE devices (the embodiment shown in Figure 6 shows a beam splitter which directs a portion of an incident beam to detector 61; column 4, lines 35-47); and

an optical sensing device (detector 61), the optical sensing device located so as to detect the reflected portion of the incident optical beam (column 4, lines 35-47);

wherein the optical sensing device generates the positional error signal, the positional error signal having a magnitude proportional to the degree of deviation from the desired optical alignment (column 4, lines 16-25).

Palen et al. do not specifically disclose “affixing” the disclosed beam splitter to one of the first and second OE devices, but it would be well understood in the art that such an element would be mounted/supported among the other components in the system so that it would remain in a certain position to receive the incoming light signal. It would have been obvious to a person of ordinary skill in the art to affix the element in the system disclosed by Palen et al. in order to keep it in a fixed position during operation; one in the art would have been particularly motivated to affix the beam splitter in place since the system is particularly directed to providing optical alignment and relies on optical elements in the system to be fixed relative to the carefully controlled moving first OE device.

Regarding claims 6 and 18, Palen et al. disclose a controller (specifically, sensing element 62), converting the positional error signal to correction signal, the correction signal being inputted to the actuation means 74, 76, and 78 (column 4, lines 16-47).

Regarding claims 7 and 19, Palen et al. disclose a driver (specifically, controller 66) having the correction signal as an input thereto and an output for providing a controlled current to the actuation means 74, 76, and 78 (column 4, lines 16-47).

Regarding claim 8, Palen et al. disclose that the actuation means further comprises: a plurality of actuator mechanisms 74, 76, and 78, each of the plurality of actuator mechanisms capable of imparting a translating motion upon the first OE device (column 3, lines 50-54).

Regarding claim 11, Palen et al. disclose that the error detection means (sensing element 62 and controller 66) compares the magnitude of optical power received by the second OE device to a desired optical power level (column 4, lines 16-47).

Regarding claim 12, Palen et al. disclose that the error detection means (sensing element 62 and controller 66) generates the positional error signal whenever the magnitude of optical power received by the second OE device is less than the desired optical power level (column 4, lines 16-47).

7. Claims 9, 10, and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Palen et al. as applied to claims 8 and 19 above, and further in view of Dee et al. (US 6,690,864 B1).

Regarding claims 9 and 20 (as well as claim 20 may be understood with regard to 35 U.S.C. 112 as discussed above), Palen et al. suggest a system and method as discussed above with regard to claims 8 and 19; the system suggested by Palen et al. also includes a housing, and Palen et al. disclose first, second, and third actuator mechanisms, 74, 76, and 78. They also generally disclose that the actuators are coupled to the first OE device and that the actuators are affixed on monolithic body 67.

Palen et al. are silent regarding further details of the actuator mechanisms in their system and do not specifically disclose that the second actuator has a second linkage directly coupled to a first actuator that is directly coupled to the first OE device or that the third actuator has a third linkage directly coupled to the second actuator mechanism.

However, Dee et al. teach a system related to the one disclosed by Palen et al., including means for positioning and aligning an optical fiber 56 along three orthogonal axes (Figure 1; column 2, lines 41-65). They further teach a first actuator with a first linkage directly coupled to



Art Unit: 2633

the fiber 56 (y-axis platform 38); a second actuator with a second linkage (x-axis platform 34) directly coupled to the first actuator mechanism; and a third actuator having a third linkage (z-axis platform 32) directly coupled to the second actuator mechanism, the third actuator mechanism being affixed within the housing/package (column 2, lines 41-65; column 3, lines 62-67; column 4, lines 1-53).

Regarding claims 9 and 20, it would have been obvious to a person of ordinary skill in the art to implement the actuator means disclosed by Palen et al. with the structure taught by Dee et al. as a way to controllably move the first OE device in all three dimensions and thereby provide any spatial adjustment as desired in order to optimally align the first and second OE devices.

Regarding claim 10, Palen et al. disclose that the first, second, and third actuators 74, 76, and 78 are capable of translating the first OE device along first, second, and third axes, respectively, that are orthogonal to each other (i.e., the x, y, and z axes in three dimensions; column 3, lines 50-54).

### *Conclusion*

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Y. Leung whose telephone number is 571-272-3023. The examiner can normally be reached on Monday to Friday, 6:30 to 3:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Art Unit: 2633

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Christina Y Leung  
Christina Y Leung  
Patent Examiner  
Art Unit 2633